

In the claims:

All of the claims standing for examination are reproduced below with appropriate status indication.

1. (Previously presented) A software application for enabling automated notification of applied structural changes to electronic information pages hosted on a data packet network comprising:

 a developer-interface module for enabling developers to build and modify network navigation and interaction templates using functional logic blocks, for navigating to and interacting with interactive electronic information pages;

 a navigation system-interface module for integrating the software application to a proxy-navigation system for periodic execution of the templates;

 a change-notification module for indicating a point in process where a navigation and interaction routine has failed and for creating a data file containing parameters associated with the failed routine; and

 a database interface module for interfacing the software application to a data repository for storing the data file, wherein the software application periodically submits test navigation and interaction routines to the navigation system for execution by virtue of the interface with the navigation system, and upon failure of a test routine, creates the data file, the data file comprising a point-of-failure indication within the failed routine, an identifier of the associated electronic information page subjected to the navigation routine, and stores the data file in the data repository sending notification of the action to the developer.

2. (Original) The software application of claim 1, wherein the data-packet-network is the Internet network.

3. (Original) The software tool of claim 2, wherein the functional logic blocks include

site-logic blocks, automated site-login blocks, and automated site-registration blocks.

4. (Original) The software application of claim 3, wherein the software application is an Internet-based application executing and running on an Internet server.

5. (Original) The software application of claim 4, wherein the software application is accessible through a network-browser application.

6. (Original) The software application of claim 5, wherein the navigation templates are test routines executed for the purpose of determining success or failure of the routine.

7. (Original) The software application of claim 6, wherein the navigation templates are executable instruction orders containing logic blocks.

8. (Original) The software application of claim 7, wherein the functional logic blocks are modular and self-installable within the navigation templates.

9. (Original) The software application of claim 8, wherein the data files are human readable and are accessed by developers for the purpose of affecting updating of the navigation templates.

10. (Original) The software application of claim 9, wherein the developers access the application through individual computerized workstations.

11. (Original) The software application of claim 10, wherein the error notification and data file creation processes are also performed in the event of failure of a client's personalized navigation template.

12. (Previously presented) A change-notification system for detecting structural changes

applied to electronic information pages hosted on a data-packet-network comprising:

a software application installed on a network-connected processor, the software application enabling developers to construct and cause execution of navigation and interaction templates and enabling failed instances of navigation and interaction executed on the network to be reported;

a server system connected to the network, the server system hosting a proxy-navigation software application for executing the templates, the navigation software accessible through the software application;

a data repository accessible to the server system and to the software application, the data repository storing information about clients and result information about the failed navigation and interaction routines, the result information supplied by the software application; and

a plurality of network-connected nodes having network access to the software application and to the data repository, wherein access of the software application is practiced by developers operating the network-connected nodes for the purpose of building and causing execution of the navigation and interaction templates, the templates used to test the current structural states of electronic information pages hosted on the network, and wherein the software application notifies of failure instances of the executed routines, the failure instances logged in the database.

13. (Original) The change-notification system of claim 12, wherein the data-packet-network is the Internet network.

14. (Original) The change-notification system of claim 13, wherein the network-connected processor hosting the software application is an Internet-connected server.

15. (Original) The change-notification system of claim 14, wherein the server system hosting the proxy navigation software also hosts the software application.

16. (Original) The change-notification system of claim 15, for in the server system contains a single server hosting both the proxy navigation software and the software application.

17. (Original) The change-notification system of claim 16, wherein the software application and the proxy navigation software are integrated as a single application enabling both functions of navigating according to navigation templates and notifying and recording failed instances of navigation.

18. (Previously presented) A method for receiving notification of random structural changes applied to electronic information pages accessed by a proxy network navigation and interaction system and effecting updates to navigation templates based on the change information comprising steps of:

- (a) establishing notification of a failed navigation and interaction routine executed for the purpose of navigating to and interacting with an electronic information page;

- (b) recording an instance of the failed routine including parameters associated with the cause of failure;

- (c) accessing the recorded instance of the failed routine for review purposes;

- (d) navigating to the electronic information page identified in the recorded instance;

- (e) accessing source information associated with electronic information page identified in the recorded instance;

- (f) creating new logic according to the source information and according to information contained in the recorded instance; and

- (g) installing the new logic into existing navigation templates that depend on the updated information for successful function.

19. (Original) The method of claim 18, wherein the data-packet-network is an Internet network and electronic information page is a web page hosted on the network.

20. (Original) The method of claim 19 wherein in step (a), wherein the navigation routine is performed according to a test navigation template created for the purpose.

21. (Original) The method of claim 19 wherein in step (a), wherein the navigation routine is performed according to a client navigation template executed to perform services for the client.

22. (Original) The method of claim 19 wherein in step (b), the recorded instance of a failed routine is created in the form of a data file and stored in a data repository accessible through the network.

23. (Original) The method of claim 22 wherein in step (c), the recorded instance of the failed navigation routine is accessed by a human software developer.

24. (Original) The method of claim 23 wherein in step (d), navigation is performed by the developer utilizing an instance of browser software installed on a computerized workstation.

25. (Original) The method of claim 24 wherein in step (f), the new logic is credited in the form of a modular logic block installable to navigation templates.

26. (Original) The method of claim 25 wherein in step (g), the new logic block self-installs to a depended navigation template.

27. (Original) The method of claim 18 wherein a step is added between steps (f) and (g) for testing the new logic before implementation.

28. (Original) The method of claim 26 wherein in step (g) more than one new logic block

is created for a single navigation template.

29. (New) A method for collecting information, comprising the steps of:

- (a) linking to a web site;
- (b) extracting information from the web site using a navigation routine;
- (c) summarizing the extracted information with information extracted from at least one other web site;
- (d) noting any error in the extraction step;
- (e) changing the navigation routine according to any error noted in step (d); and
- (f) storing the summarized data in an information repository.

30. (New) The method of claim 29 wherein the web site is a finance-related web site.

31. (New) The method of claim 30 wherein the web site comprises account information for a specific person.

32. (New) The method of claim 29 wherein the web site comprises a hypertext markup language (HTML)-scripted electronic page.

33. (New) The method of claim 29 further comprising steps:

- (a) linking to a second web site;
- (b) extracting information from the second web site using the navigation routine;
- (c) summarizing the information extracted from the second web site with the information extracted from the first web site;
- (d) noting any error in operation of the navigation routine;
- (e) changing the navigation routine according to any error noted in step (j); and
- (f) storing the summarized information in the information repository.

34. (New) The method of claim 29 wherein the error noted in the extraction step is

context-specific and an error involving extraction in step (b).

35. (New) The method of claim 29 further comprising step for storing a copy of a web page accessed in the extraction step (b).

36. (New) One or more computer-readable memories upon which is stored a computer program that is executable by a processor to perform the method recited in claim 29.

37. (New) A method for collecting financial information associated with a specific person, comprising the steps of:

- (a) extracting financial information associated with the person from an information source;
- (b) identifying information of interest from the information extracted;
- (c) noting any error in the extraction step involving the information of interest, and using the context of the error to correct the extraction step;
- (d) summarizing the information of interest; and
- (e) storing the summarized information in an information repository.

38. (New) The method of claim 37 further comprising steps:

- (a) extracting financial information associated with the person from a second information source;
- (b) summarizing the information of interest extracted from the second information source; and
- (c) storing the summarized information in the information repository.

39. (New) One or more computer-readable memories upon which is stored a computer program that is executable by a processor to perform the method recited in claim 37.

40. (New) A method for collecting information, comprising the steps of:

- (a) linking to a web site;
 - (b) trying to extract information from the web site using a navigation routine; and
- if information cannot be extracted:
- (c) extracting specific personal information;
 - (d) storing a copy of a web page from the web site, without the personal information;
 - (e) determining from the web page and the navigation routine why information cannot be extracted; and
 - (f) changing the navigation routine according to the determination made in step (e).

41. (New) The method of claim 40 further comprising a step for changing the navigation routine according to information determined from the web page, and extracting information successfully from the web site using the changed navigation routine.

42. (New) The method of claim 40 further comprising steps for:

- changing the navigation routine according to information determined from the web page;
- accessing a new version of the web page stored in step (d); and
- extracting information successfully from the new version of the web page using the changed navigation routine.

43. (New) The method of claim 42 further comprising:

- summarizing the information extracted from the new version of the web page; and
- storing the information in an information repository.

44. (New) One or more computer-readable memories upon which is stored a computer program that is executable by a processor to perform the method recited in claim 40.

45. (New) A method for collecting information, comprising the steps of:
- (a) linking to a first web site associated with a first financial institution;
 - (b) linking to a second web site associated with a second financial institution;
 - (c) extracting information from the first web site using a first navigation routine;
 - (d) extracting information from the second web site using a second navigation routine;
 - (e) summarizing the information extracted from the first and the second web sites;
 - (f) noting any error in extraction step (c); and
 - (g) storing the summarized information in an information repository.
46. (New) The method of claim 45 further comprising a step for noting any error in extraction step (c) or (d).
47. (New) One or more computer-readable memories upon which is stored a computer program that is executable by a processor to perform the method recited in claim 45.
48. (New) The method of claim 45 wherein linking to the first web site comprises accessing a first set of web pages.
49. (New) The method of claim 45 wherein linking to the second web site comprises accessing a second set of web pages.
50. (New) An apparatus for collecting information, comprising:
- a first module configured to link to a web site associated with a first financial institution and to link to a second web site associated with a second financial institution;
 - a second module configured to extract personal information from one or more web pages at the web sites, and to note any error in extracting the personal information;
 - a third module configured to extract information from the first and the second web pages, to summarize information extracted, the fourth module capable of change based on

alterations to the web pages that occur over time; and

a fourth module configured to store the summarized information in an information repository.

51. (New) The apparatus of claim 50 wherein the fourth [fourth? (if we change 22 as noted above)]module is also configured to extract financial information associated with a specific person's account.

52. (New) The apparatus of claim 50 wherein the fourth module is also configured to note any error if information cannot be extracted.

53. (New) One or more computer-readable media upon which is stored a computer program that is executable by one or more processors to perform a method, comprising the steps of:

- (a) linking to a web site associated with a financial institution;
- (b) trying to extract information from a web page of the web site the web site using a navigation routine;
- (c) deleting specific personal information from the web page;
- (d) storing a copy of a web page from the web site, without the personal information; and
- (e) if information cannot be extracted from the web page, noting the error and determining from the web page why information could not be extracted.

54. (New) The one or more computer-readable media of claim 53 wherein, if information cannot be extracted, the navigation routine is altered based on the error noted and the determination from the web page.

55. (New) The one or more computer readable media of claim 53, further comprising:
summarizing the information extracted from the web page; and

storing the summarized data in an information repository containing information extracted from other web pages.

56. (New) The method of claim 40 wherein the personal information comprises at least one of a social security number, an account number, or an account holder's name.

57. (New) The method of claim 50 wherein the personal information includes at least one of a social security number, an account number, or an account holder's name.

58. (New) A method comprising:

- capturing a web page from a web site;
- extracting data from the web page using a data harvesting script;
- normalizing the extracted data with data extracted from other web pages;
- generating a context-specific error code if the data harvesting script fails to successfully extract data from the web page;
- adapting the data harvesting script based on identified changes to the web page;
- and
- storing the normalized data in a database.

59. (New) A method as recited in claim 58 wherein the web site is associated with a financial institution.

60. (New) A method as recited in claim 59 wherein the captured web page contains information regarding a customer's account at the financial institution.

61. (New) A method as recited in claim 58 wherein the web page is an HTML screen.

62. (New) A method as recited in claim 58 further comprising:

- capturing a second web page from a second web site;

extracting data from the second web page using the data harvesting script;
normalizing the data extracted from the second web page with data extracted from other web pages;

generating a context-specific error code if the data harvesting script fails to successfully extract data from the web page;

adapting the data harvesting script based on identified changes to the web page;
and

storing the normalized data from the second web page in the database.

63. (New) A method as recited in claim 58 wherein the context-specific error code identifies a type of change necessary to the data harvesting script to properly extract data from the web page.

64. (New) A method as recited in claim 58 further comprising storing a copy of the captured web page if data cannot be extracted from the web page using the data harvesting script.

65. (New) One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 58.

66. (New) A method comprising:

retrieving financial data associated with a user's financial account from a data source;

identifying data of interest retrieved from the data source;

generating a context-specific error code if the data of interest is not successfully retrieved from the data source, wherein the context-sensitive error code is used to modify the manner in which data is retrieved from the data source;

and normalizing the identified data;

and storing the normalized data in a database.

67. (New) A method as recited in claim 66 further comprising:
- retrieving financial data associated with a user from a second data source;
 - normalizing the data retrieved from the second data source;
 - and storing the normalized data in the database.
68. (New) One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 66.
69. (New) A method comprising:
- capturing a web page from a web site;
 - attempting to extract data from the web page using a data harvesting script;
 - if data cannot be extracted from the captured web page:
 - removing pre-determined personal information from the captured web page;
 - storing the captured web page without the personal information;
 - analyzing the web page and the data harvesting script to determine why data could not be extracted from the web page; and
 - adapting the data harvesting script based on the determination why data could not be extracted from the web page.
70. (New) A method as recited in claim 69 further comprising editing the data harvesting script based on an analysis of the captured web page, wherein the edited data harvesting script successfully extracts data from the web page.
71. (New) A method as recited in claim 69 further comprising:
- editing the data harvesting script based on an analysis of the captured web page;
 - capturing a new version of the web page from the web site; and
 - extracting data from the web page using the edited data harvesting script.

72. (New) A method as recited in claim 71 further comprising:

normalizing the data extracted from the web page; and
storing the normalized data in a database.

73. (New) One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 69.

74. (New) A method comprising:

capturing a first web page from a first financial institution web site;
capturing a second web page from a second financial institution web site;
extracting data from the first web page using a first data harvesting script;
extracting data from the second web page using a second data harvesting script;
normalizing the data extracted from the first web page and the second web page;
generating a context-specific error code if the first data harvesting script fails to successfully extract data from the first web page; and
storing the normalized data in a database.

75. (New) A method as recited in claim 74 further comprising generating an error message if data cannot be extracted from the first web page or the second web page.

76. (New) One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 74.

77. (New) A method as recited in claim 74 wherein capturing a first web page includes capturing a first set of web pages.

78. (New) A method as recited in claim 74 wherein capturing a second web page includes capturing a second set of web pages.

79. (New) An apparatus comprising:

a data capture module configured to capture a first web page from a first web site associated with a first financial institution and further configured to capture a second web page from a second web site associated with a second financial institution;

a personal information filter module coupled to the data capture module and configured to remove personal information from one or more web pages, wherein the personal information filter module generates a specific error code if the personal information filter module is not able to identify personal information on a particular web page;

a data extraction module coupled to the data capture module and configured to extract data from the first and second web pages using a data harvesting script, the data extraction module further configured to normalize the data extracted from the first and second web pages, and wherein the data extraction module is adaptable based on changes to web pages that occur over time; and

a database control module coupled to the data extraction module and configured to store the normalized data in a common database.

80. (New) An apparatus as recited in claim 79 wherein the data capture module is further configured to retrieve financial data associated with a user's account from a data source.

81. (New) An apparatus as recited in claim 79 wherein the data extraction module is further configured to generate an error message if data cannot be extracted from the web page using the data harvesting script.

82. (New) One or more computer readable media having stored thereon a plurality of instructions that, when executed by one or more processors, cause the one or more processors to:

capture a web page from a financial institution web site;

attempt to extract data from the captured web page using a data harvesting script;
remove personal information from the captured web page;
store the captured web page without the personal information; and
if data cannot be extracted from the web page, generate a context-specific error code and analyze the web page to determine why data could not be extracted from the web page.

83. (New) One or more computer readable media as recited in claim 82, wherein if data cannot be extracted from the web page, the one or more processors further edit the data harvesting script based on an analysis of the captured web page and the context-specific error code.

84. (New) One or more computer readable media as recited in claim 82, wherein the one or more processors further:

normalize the data extracted from the web page; and
store the normalized data in a database, wherein the database contains data extracted from other web pages.

85. (New) A method as recited in claim 69 wherein the personal information includes at least one of: a social security number, an account number, or an account holder's name.

86. (New) A method as recited in claim 79 wherein the personal information includes at least one of: a social security number, an account number, or an account holder's name.